

A new species of *Diedrocephala* SPINOLA from northern Brazil with taxonomic notes on the genus

(Hemiptera: Cicadellidae: Cicadellinae)

Talita T. MAURO, Gabriel MEJDALANI and Márcio FELIX

Abstract

Diedrocephala delicata sp. n. is described and illustrated based on six male specimens from Rondônia State, northern Brazil. Color and male genitalic characters, distinguishing the new taxon from the other nine known species of the Central and South American genus *Diedrocephala* SPINOLA, are given. The new species is apparently closely related to *D. euthemis* YOUNG, *D. bella* CAVICHIOLI, and *D. continua* SAKAKIBARA & CAVICHIOLI.

Introduction

The genus *Diedrocephala* SPINOLA, 1850 is known from most of the Neotropical region (specimens have been studied from Honduras and southern Mexico to the Guianas, Argentina, and Bolivia) (YOUNG 1977, ZANOL & DE MENEZES 1982, SAKAKIBARA & CAVICHIOLI 1982, CAVICHIOLI 1986, OMAN et al. 1990). This genus, which has nine described species, can be distinguished from the other Neotropical genera of Cicadellinae by the following combination of features:

- (1) head well produced with anterior margin narrowly rounded in dorsal view (Fig. 2);
- (2) forewings with the apical margin slightly concave and with the outermost anteapical cell lenticular (Fig. 1);
- (3) aedeagus symmetrical, directed ventrally or posteroventrally and slightly expanded at apex (Fig. 6);
- (4) paraphyses asymmetrical (exception: *D. bella* CAVICHIOLI, 1986) (Figs. 8, 9).

In this paper, a new species of *Diedrocephala* is described and illustrated based on six male specimens from Rondônia State, northern Brazil. These specimens are deposited in the Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ; Rio de Janeiro, Brazil). The morphological terminology adopted herein follows mainly YOUNG (1977), except that of the head, which follows HAMILTON (1981) and MEJDALANI (1998), and that of the wing venation, which follows DWORAKOWSKA (1988). Techniques for preparation of the male genital structures follow those of OMAN (1949). The dissected parts are stored in microvials with glycerin and attached below the specimens.

Diedrocephala delicata sp. n.
(Figs. 1-9)

Type locality: Vilhena (12°44'S, 60°08'W), Rondônia State, northern Brazil.

Holotype ♂: Total length 9.6 mm. Head well produced anteriorly; crown triangular, anterior margin narrowly rounded in dorsal view; median length of crown approximately seven-tenths interocular width and two-fifths transocular width; ocelli equidistant between median line of crown and adjacent anterior eye angle; antennal ledges slightly protuberant in dorsal view (Fig. 2). Frons weakly convex in lateral view; muscle impressions not very distinct. Pronotum width greater than transocular width of head; lateral margins convergent anteriorly and posterior margin slightly concave (Fig. 2). Forewings with four apical

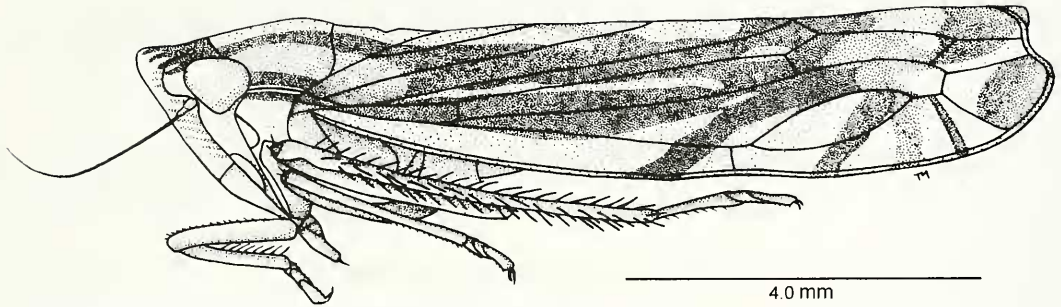


Fig. 1. *Diedrocephala delicata* sp. n. – lateral habitus of male (paratype).

cells; fourth (outer) apical cell not very distinct, reaching outer (lenticular) anteapical cell; membrane extending from basal portion of corium along costal margin and expanded on apical half (Fig. 1). Remaining morphological characteristics of head and thorax as in the generic description of YOUNG (1977: 322).

Genitalia: Pygofer short and truncate apically, with slight dorsoapical lobe, surface with macrosetae on apical portion, microsetae also present (Fig. 3). Subgenital plates very short and broadly rounded apically, with oblique row of macrosetae near posterior margin, microsetae also present (Fig. 4). Styles extending posteriorly beyond apex of connective, with lobe on apical half of outer margin, portion beyond lobe slightly curved and with setae, apex truncate (Fig. 5). Connective small, V-shaped, with median keel (Fig. 5). Aedeagus symmetrical, curved ventrally, with ventral preapical bifurcated process, gonoduct distinct, gonopore on apex of shaft (Figs. 6, 7). Paraphyses asymmetrical, with two curved rami, left ramus distinctly longer than right ramus, stalk approximately as long as left ramus (Figs. 8, 9).

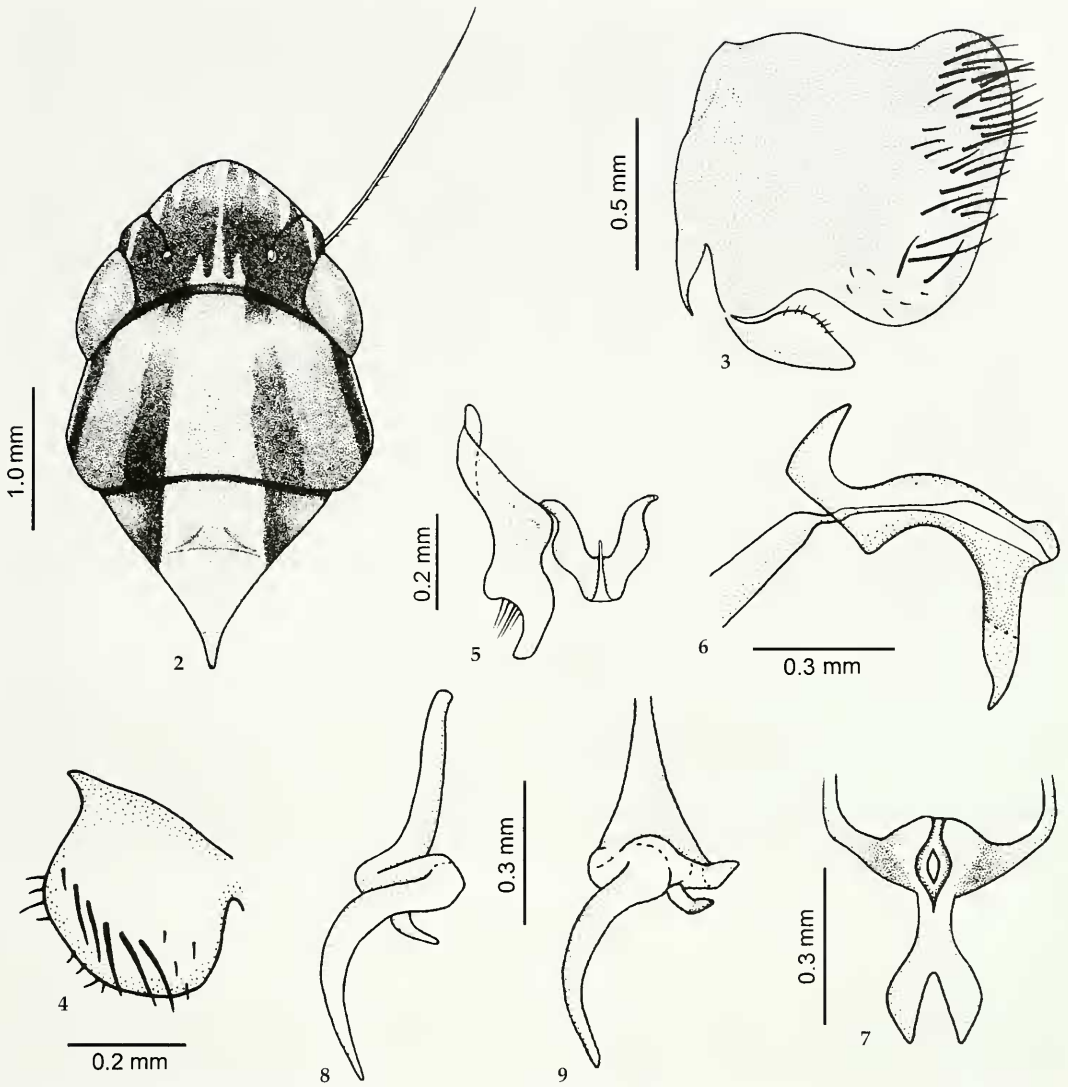
Color: Crown black with series of triangular yellow markings along anterior margin and with yellow median marking trifurcated at its base on posterior margin; pair of small brown markings on posterior margin adjacent to eyes (Fig. 2). Dorsum with broad median longitudinal yellow stripe extending from anterior margin of pronotum (continuous with trifurcated marking of crown) to near apex of clavus; this stripe broadened on apical half of clavus, where it is almost entirely interrupted by diagonal brown stripe (commissural margin remains yellow along interrupted area) (Fig. 1); lateral portions of pronotum with pair of brown longitudinal broad stripes extending also along lateral basal portions of mesonotum to bases of forewings (Figs. 1, 2); median yellow stripe and lateral brown stripes bordered by black stripes on pronotum (Fig. 2); median yellow stripe bordered by pair of black stripes on mesonotum (continuous with inner pair of black stripes of pronotum) (Figs. 1, 2); forewings with ground color black to dark-brown; membrane yellow with some colorless areas and with three diagonal and two approximately transverse bands; diagonal bands brown (anterior and posterior ones broad, attaining costal margin; median one narrow, on vein RP+MA, not attaining costal margin); anterior transverse band orange, broad, posterior one brown, narrow; three colorless bands, first one behind first diagonal brown band, second one before third diagonal brown band, third one between transverse orange and brown bands; narrow red line on corium extending from basal portion of brachial cell to apical portion of inner discal cell; two small elongate maculae, one (yellow) on vein CuA at posterior portions of inner discal and brachial cells and other (orange) near vein MP opposite base of outer (lenticular) anteapical cell; large orange macula on median and inner anteapical cells followed by pair of colorless areas; large fulvous area on inner apical cell; apical portion of first (inner) and third apical cells dark-brown. Face, venter, legs, and thoracic pleura mostly yellow; dorsopleural carinae covered by yellow longitudinal stripe; lateral lobes of pronotum with longitudinal black stripe adjacent to dorsopleural carina (Fig. 1).

Female: unknown.

Intraspecific variation (based on five paratypes): Males of *D. delicata* sp. n. range in length from 9.6 to 10.3 mm. The brown markings of crown adjacent to eyes, which are distinct in the holotype, are fainter or absent in the paratypes. Similarly, the pair of brown longitudinal stripes on the pronotum, which are conspicuous in the holotype, are fainter in some paratypes.

Type material (a reversed virgule [\] separates lines on the labels). Brazil, Rondônia State.

Holotype ♂: (MNRJ) “Vilhena – RO \ 1988 \ J. BECKER col.”.



Figs. 2-9. *Diedrocephala delicata* sp. n. 2. crown, pronotum, and mesonotum, dorsal view; 3. pygofer and subgenital plate, lateral view; 4. subgenital plate, ventral view; 5. connective and style, dorsal view; 6. portion of gonoduct before aedeagus and aedeagus, lateral view; 7. aedeagus, caudal view; 8. paraphyses, lateral view; 9. paraphyses, dorsal view. Figs. 2 and 3 from paratypes, remaining ones from the holotype.

Paratypes ♂♂: (MNRJ) one male, same data as holotype; two males, same data as holotype, except "30/X/1986"; one male, "Rio Pimenta [Bueno ?] \ Divisa Vilhena \ Colorado d'Oeste \ RO 13/X/1988 \ J. BECKER col."; one male, same data as preceding, except "Divi- \ sa Vilhena-".

Discussion: The color pattern suggests that *D. delicata* sp. n. is closely related to *D. euthemis* YOUNG, 1977 (W. Bolivia), *D. bella* CAVICHIOLI, 1986 (Central W. and SE. Brazil), and *D. continua* SAKAKIBARA & CAVICHIOLI, 1982 (Central W. and SE. Brazil). The new taxon can be distinguished from these species, as well as from *D. erupa* YOUNG, 1977 (Peru), *D. variegata* (FABRICIUS, 1775) (widespread in the Neotropics), and *D. youngi* SAKAKIBARA & CAVICHIOLI, 1982 (S. Brazil), by the following combination of features: (1) pygofer short and truncate apically, its posterior portion with a slight dorsoapical lobe, disc with macrosetae on apical portion (Fig. 3); (2) subgenital plates very short and broadly rounded apically, with few macrosetae on posterior

half (Fig. 4); (3) connective small, V-shaped, with median keel (Fig. 5); (4) aedeagus symmetrical, directed ventrally, with ventral, preapical bifurcated process (Figs. 6, 7). In addition to these genital features, the male specimens of *D. delicata* sp. n. are apparently the largest in the genus. They range in length from 9.6 to 10.3 mm, while male specimens from the other species range in length from 6.2 to 9.5 mm (YOUNG 1977, SAKAKIBARA & CAVICHIOLI 1982, CAVICHIOLI 1986).

The following species of *Diedrocephala* are of uncertain identity and their male genitalia have not been described: *D. elvina* (BUTLER, 1874), *D. pulcherrima* (BLANCHARD, 1840), and *D. typhlocyboides* (SIGNORET, 1854). These taxa were not included by YOUNG (1977) in his key to the species of the genus. He was not able to examine the types of the latter two species, while the lectotype of the former one is a teneral male specimen. Although the morphology of these three species is poorly known, they can be distinguished from *D. delicata* sp. n. by the following characteristics of their color patterns:

- *Diedrocephala elvina* (“St. Paulo, Amazons”) has the distal third of the forewings bright orange and with a rounded black subapical spot partially edged internally with white (BUTLER 1874).
- *Diedrocephala pulcherrima* (Brazil) has a yellow marking on the pronotum that extends over the mesonotum; no brown markings are present on the pronotal disc (BLANCHARD 1840).
- *Diedrocephala typhlocyboides* (Mexico) has a black pronotal disc without markings; the median portion of the forewings shows a large, transverse transcommissural white marking (SIGNORET 1854).

The type locality of *D. delicata* sp. n. (Vilhena, Rondônia State) is in a region originally covered by “cerrado” (savanna) vegetation with spots of Amazonian forest. This region is a transition between the “cerrado” and Amazonian forest ecosystems. The trees in the forest spots are usually about 30 meters in height. The original vegetation is rapidly disappearing due to the intense and disorganized human colonization in the region (UFRJ 1990).

Acknowledgements

We are greatly indebted to J. BECKER, who collected the specimens herein described. The manuscript benefited from the useful comments and suggestions of A. L. CARVALHO, P. C. CEOTTO, P. R. MAGNO, M. W. NIELSON, D. M. TAKIYA, and M. D. WEBB. The latter kindly sent us a copy of the work of BUTLER (1874). Fellowships from the Brazilian agencies Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq/PIBIC) to TTM and from Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) to MF are greatly acknowledged. This study was supported in part by Universidade Federal do Rio de Janeiro (UFRJ) and Fundação Universitária José Bonifácio (FUJB).

Zusammenfassung

Diedrocephala delicata sp. n. wird auf Grund von fünf männlichen Exemplaren aus dem nördlichen Brasilien (Rondônia Staat) beschrieben und abgebildet. Die Färbung und Merkmale der Genitalien, die die neue Art von den neun anderen bekannten Arten der zentral- und südamerikanischen Gattung *Diedrocephala* SPINOLA unterscheidet, sind beschrieben. Die neue Art scheint mit *D. euhemis* YOUNG, *D. bella* CAVICHIOLI, und *D. continua* SAKAKIBARA & CAVICHIOLI nah verwandt zu sein.

Literature

- BLANCHARD, E. 1840: Histoire Naturelle des Insectes Orthoptères, Névroptères, Hémiptères, Hyménoptères, Lépidoptères et Diptères. – P. Duménil, Paris, 3, 672 pp.
- BUTLER, A. G. 1874: Descriptions of three new species of homopterous insects. – Proc. Zool. Soc. 1874, 672-673.
- CAVICHIOLI, R. R. 1986: Nova espécie de *Diedrocephala* Spinola (Homoptera, Cicadellidae). – Revta. Brasil. Ent. 30, 287-289.
- DWORAKOWSKA, I. 1988: Main veins of the wings of Auchenorrhyncha (Insecta, Rhynchota: Hemelytrata). – Ent. Abh. Mus. Tierk. Dresden 52, 63-108.
- HAMILTON, K. G. A. 1981: Morphology and evolution of the rhynchotan head (Insecta: Hemiptera, Homoptera). – Can. Ent. 113, 953-974.
- MEJDALANI, G. 1998: Morfologia externa dos Cicadellinae (Homoptera, Cicadellidae): comparação entre *Versigonalia ruficauda* (Walker) (Cicadellini) e *Tretogonia cribrata* Melichar (Proconiini), com notas sobre outras espécies e análise da terminologia. – Revta. Brasil. Zool. 15, 451-544.

- OMAN, P. W. 1949: The Nearctic leafhoppers (Homoptera: Cicadellidae). A generic classification and check list. – Mem. Ent. Soc. Wash. **3**, 1-253.
- OMAN, P. W., W. J. KNIGHT & M. W. NIELSON 1990: Leafhoppers (Cicadellidae): a bibliography, generic check-list and index to the world literature 1956-1985. – CAB International Institute of Entomology, Wallingford, Oxon, 368 pp.
- SAKAKIBARA, A. M. & R. R. CAVICHIOLI 1982: Duas espécies novas de *Diedrocephala* Spinola (Homoptera, Cicadellidae). – Revta. Brasil. Ent. **26**, 241-245.
- SIGNORET, V. 1854: Revue iconographique des Tettigonides. – Anns. Soc. Ent. France **2**, 717-732, pl. 21.
- UFRJ [UNIVERSIDADE FEDERAL DO RIO DE JANEIRO], MUSEU NACIONAL 1990: Levantamento faunístico: levantamento faunístico da área sob influência da BR-364 (Cuiabá – Porto Velho). – SCT/PR-CNPq, Programa Polonoroeste, Relatório de Pesquisa nº 13, Brasília, 235 pp.
- YOUNG, D. A. 1977: Taxonomic study of the Cicadellinae (Homoptera: Cicadellidae). Part 2. New World Cicadellini and the genus *Cicadella*. – Bull. N. Carol. Agric. Exp. Stn. **239**, vi + 1135 pp.
- ZANOL, K. M. R. & M. de MENEZES 1982: Lista preliminar dos cicadélídeos (Homoptera, Cicadellidae) do Brasil. – Iheringia (Ser. Zool.) **61**, 9-65.

Authors' addresses:

Talita T. MAURO and Prof. Dr. Gabriel MEJDALANI
Departamento de Entomologia
Museu Nacional, Universidade Federal do Rio de Janeiro (UFRJ)
Quinta da Boa Vista, São Cristóvão
20940-040 Rio de Janeiro, RJ, Brasil
E-Mail: ttmauro@mn.ufrj.br; mejdalan@acd.ufrj.br

Márcio FELIX
Departamento de Zoologia
Instituto de Biologia, UFRJ
Caixa Postal 68044
21944-970 Rio de Janeiro, RJ, Brasil
E-Mail: mfelix@acd.ufrj.br